



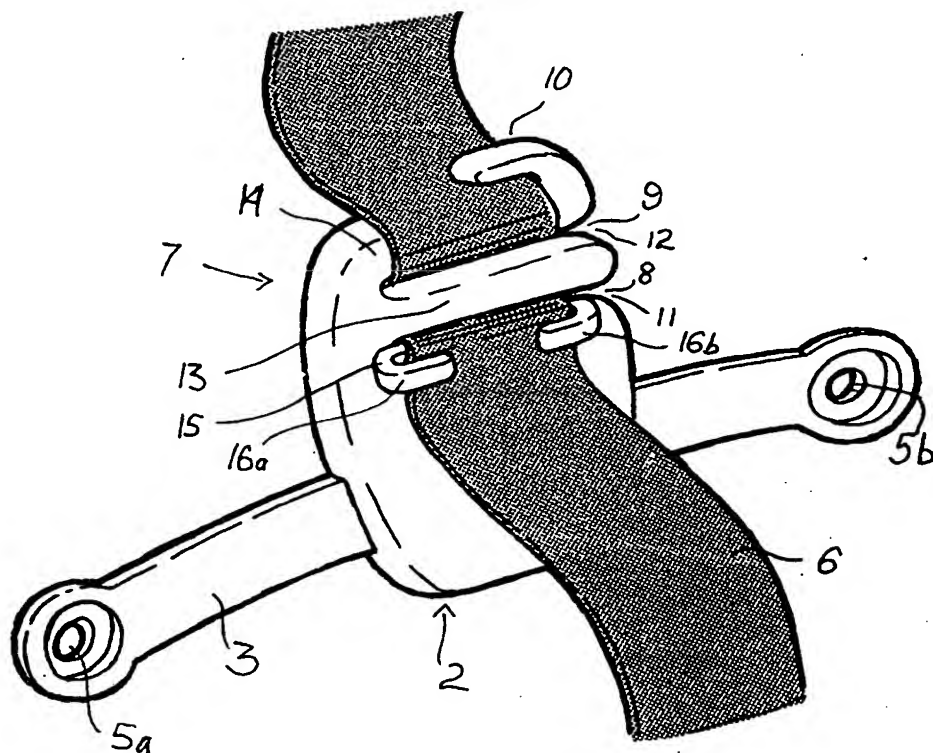
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/NO97/00298 (22) International Filing Date: 11 November 1997 (11.11.97) (30) Priority Data: 965292                      11 December 1996 (11.12.96)    NO (71) Applicant: BEWI PRODUKTER AS [NO/NO]; N-7263 Hamarvik (NO). (72) Inventor: LÖVLIE, Kjell; Husbyveien 16F, N-7500 Stjørdal (NO). (74) Agent: CURO AS; P.O. Box 38, N-7094 Lundamo (NO).	(81) Designated States: DE, DK, FI, SE, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i> <i>In English translation (filed in Norwegian).</i>	

(54) Title: GUIDE FOR A SAFETY BELT AT A CHILD'S SEAT

## (57) Abstract

Guide (2) for a safety belt at a child's seat (1), intended for use in an automobile, has a fastening part (3) that is provided for fastening the belt guide (2) to the child's seat (1) and a housing (4) that is equipped with a guiding section (7) for a safety belt (6). The fastening part (3) comprises an adjustment rail (3), along which the belt guide (2) can be adjusted in the height direction. A locking wedge (15) is provided for locking the safety belt (6) relative to the guiding section (7).



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## Guide for a safety-belt at a children's seat

Present invention concerns a guide for a safety-belt at a children's seat, according to the introductory part of Claim 1.

- 5 In the field of automobile safety, children are internationally classified in the following weight classes: Group 0: 0-9 kg, Group 0+: 8-13 kg, Group 1: 9-18 kg, Group 2: 15-25 kg and Group 3: 22-36 kg. The present invention is particularly directed to Group 1, Group 2 and Group 3.

There are known several different types of children's seats for automobiles. One  
10 type has a built-in belt-system, the safety-belt in the automobile being used to hold the seat in place. This solution is both more time intensive and more expensive than if the safety-belt of the automobile were used both to attach the children's seat and secure the child. It is also known to use the safety-belts of the automobile in children's seats.

Today, most automobiles have lap/shoulder safety belts with automatic retraction.  
15 This gives driver and passenger the freedom to move forward in the seat, if desired. However, for children in children's seats, this freedom represents a danger. In the past, children have edged forward in such a way that the lower belt has come out of its desired position over the hip and in a position over the stomach. Furthermore, the child can edge underneath the shoulder belt, thereby placing the belt over the throat,  
20 etc. In a collision, this can lead to the belt cutting into the stomach region, or shoulder blade and throat, respectively, with serious injuries resulting. In children's seats it may thus be necessary to take away the freedom represented by automatic retraction, and lock the safety belt in place.

Known belt guides are, to a small degree, adjustable in line with the growth of the  
25 child. Often, children's seats are intended for one weight class, and new seats must be bought when the child is growing. Up to this point in time, there are few children's seats that both take complete care of the safety of the child and are adjustable.

It is therefore an object with present invention to provide a belt guide that is lockable and can be adjusted in the height direction relative to the children's seat.

- 30 The object of the invention is achieved with a device having features as stated in the characterizing part of Claim 1. Further features are clear from the dependent claims.

In the following, the invention will be explained with reference to an example of embodiment and with reference to the enclosed drawings, where

Fig. 1 shows a side view of a children's seat having a belt guide according to present invention,

5 Fig. 2 shows a perspective view of the belt guide from Fig. 1 with the safety belt mounted,

Fig. 3 shows the belt guide from Fig. 1 in a rear view (from the seat), and

Fig. 4 shows an exploded perspective view of the belt guide from Fig. 1, in a rear view.

10

In Fig. 1 is shown a children's seat 1 of a per se known kind. At each side of the back rest is mounted a belt guide 2, where the one on the right side is shown. The belt guide comprises an adjustment rail 3 and a housing 4. The adjustment rail 3 is equipped with holes 5a, 5b on each end, for fastening to the seat by a screw or similar.

15 In Fig. 2 is shown the belt guide 2 with a safety belt 6 mounted. The housing 4 is connected to a guiding section 7, comprising a first slot 8, a second slot 9 and a lip 10. First slot 8 has an open end 11 that preferably is directed downwards. The second slot has a corresponding open end 12 that preferably also is directed downwards. The first slot 8 is somewhat wider than the second slot 9. Between the first and second slots 8,  
20 9 is formed a first tongue 13. A second tongue 14 is formed on the external side of the slot 9. On the downwardly directed free end of the second tongue 14 is formed a lip 10, that is directed upwards. Preferably the lip 10 extends over a distance that is about a quarter of the width of the guiding section 7.

In the first slot 8 is situated a locking wedge 15. The locking wedge 15 comprising  
25 two guiding tongues 16a, 16b that are directed against each other. The locking wedge 15 will be described in more detail below, with reference to Fig. 3 and 4.

The safety belt 6, which is the safety belt of the automobile, is threaded through the guiding section 7 as shown in Fig. 2. Firstly, it goes in the guiding tongues 16a, 16b of the locking wedge 15, then through the slot 8 on the side of the locking wedge 15,  
30 behind first tongue 13, forward through the slot 9, over second tongue 14 and under the lip 10.

In Fig. 3 and 4 is shown the belt guide 2 according to the present invention, from the side that is directed in against the children's seat 1, shown in a mounted and demounted (exploded) condition, respectively.

The adjustment rail 3 is equipped with a first cogging 17 extending in the region 5 between the holes 5a, 5b. To the housing 4 is connected a tooth plate 18 having a second cogging 19 that is directed against the first cogging 17 of the adjustment rail 3. The tooth plate 18 is fixed relative to the housing 4, for example by means of screws (not shown).

In the housing 4 is situated a coil spring 20, providing a flexible fastening of the 10 house 4 to the adjustment rail 3, so that the first and second cogging 17, 18 are pressed against each other. A cover 21 is connected to the housing 4. The cover 21 has a lower end forming a stop against the first cogging 17 of the adjustment rail 3 by movement of the belt guide 2 along the adjustment rail 3. The housing 4 can thus be moved along the adjustment rail 3 by the cogging 19 being drawn away from the 15 cogging 17 of the adjustment rail.

At the upper end of the cover 21 is situated a tongue 22, extending somewhat beyond the upper end of the cover 21, and in against the center of the cover 21 by means of a surrounding groove 23. Also the cover 21 is fixed relative to the housing 4, for example by means of screws (not shown).

20 On the locking wedge 15 is situated a hole 24, in which the tongue 22 fits. In mounted condition, the locking wedge 15 will stand in the first slot 8. The tongue 22 has a certain flexibility, which makes it possible to bend to and fro. Then the locking wedge 15 can be introduced in to and retracted from, respectively, the first slot 8. When the safety belt 6 should be adjusted, the locking wedge 15 is retracted, and 25 when the adjustment is finished, the locking wedge 15 is dropped in place and the safety belt is held fast.

For larger children where it is not necessary to fasten the safety belt 6, the belt is drawn only through the slot 9.

## Claims:

1. Guide (2) for a safety-belt at a children's seat (1), intended for use in an automobile, having a fastening part (3) that is provided for fastening the belt guide (2) to a children's seat (1) and a housing (4) that is equipped with a guiding section (7) for a safety belt (6),

**characterized** by the fastening part (3) comprises an adjustment rail (3), along which the belt guide (2) can be adjusted in height direction, and also a locking wedge (15) is provided for locking the safety belt (6) relative to the guiding section (7).

2. Guide according to Claim 1,  
**characterized** by the adjustment rail (3) is equipped with a longitudinal cogging (17), adapted to fit with a corresponding cogging (19) on a tooth plate (18) that is fastened to the housing (4).

3. Guide according to Claim 2,  
**characterized** by the coggings (17, 19) are mutually spring-loaded, so that they in their normal position are engaged by means of a spiral spring (20), and at adjustment can be brought out of engagement with each other by means of a force that is exerted against the effect of the spiral spring (20).

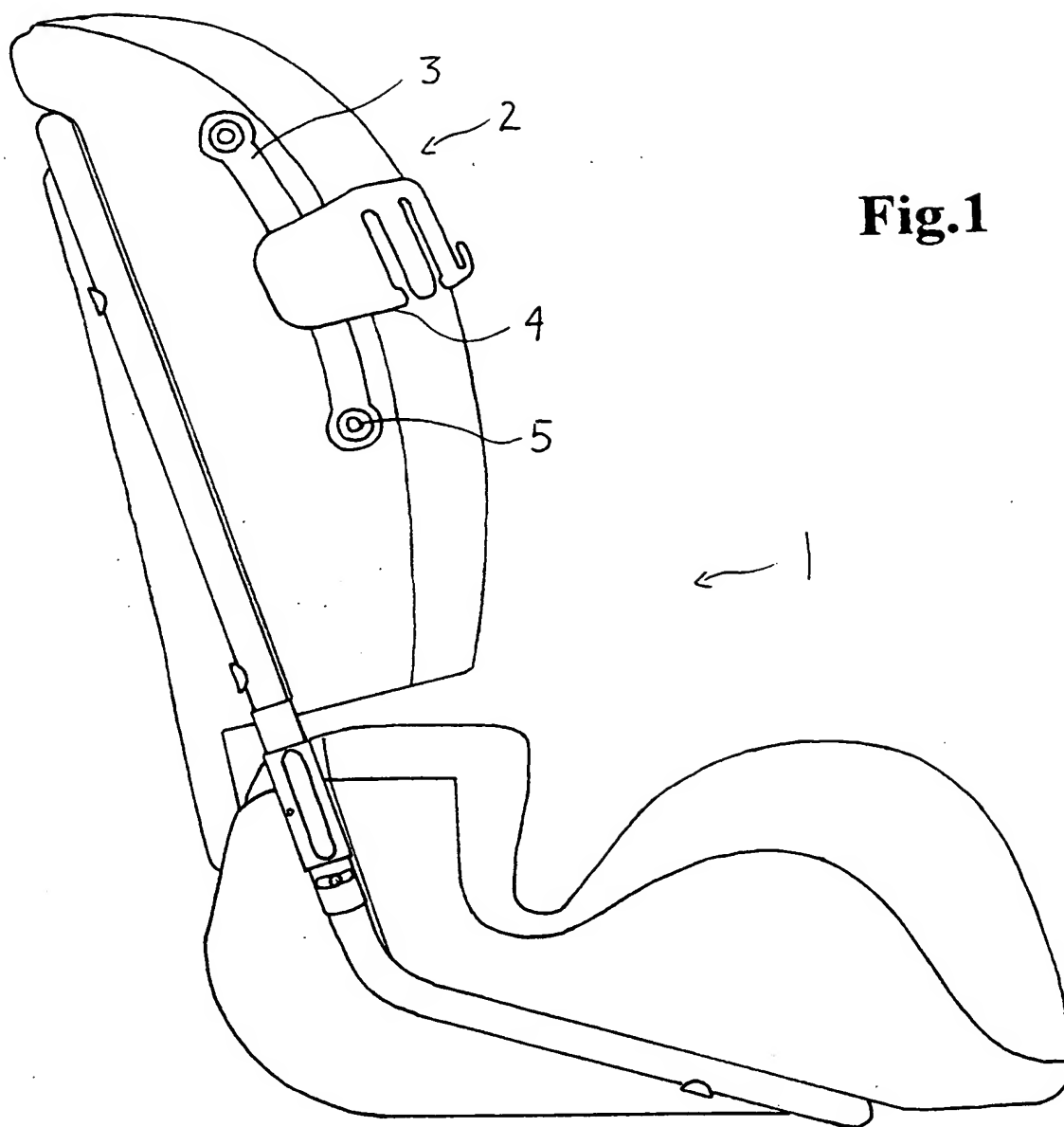
4. Guide according to any one of the previous claims,  
**characterized** by the locking wedge (15) is equipped with two lips (16a, 16b) that are standing against each other.

5. Guide according to any one of the previous claims,  
**characterized** by the locking wedge (15) is flexibly anchored relative to the guiding section (7), so that the safety belt (6) is released when the locking wedge (15) is drawn out and is locked when the locking wedge (15) is dropped in place.

6. Guide according to any one of the previous claims,  
**characterized** by the locking wedge (15) has a hole (24) in which is provided a flexible tongue (22) that is a part of a cover (21) that is fastened to the housing (4).

7. Guide according to one of the previous claims,  
**characterized** by a groove (24) is provided between the tongue (22) and the cover (21).

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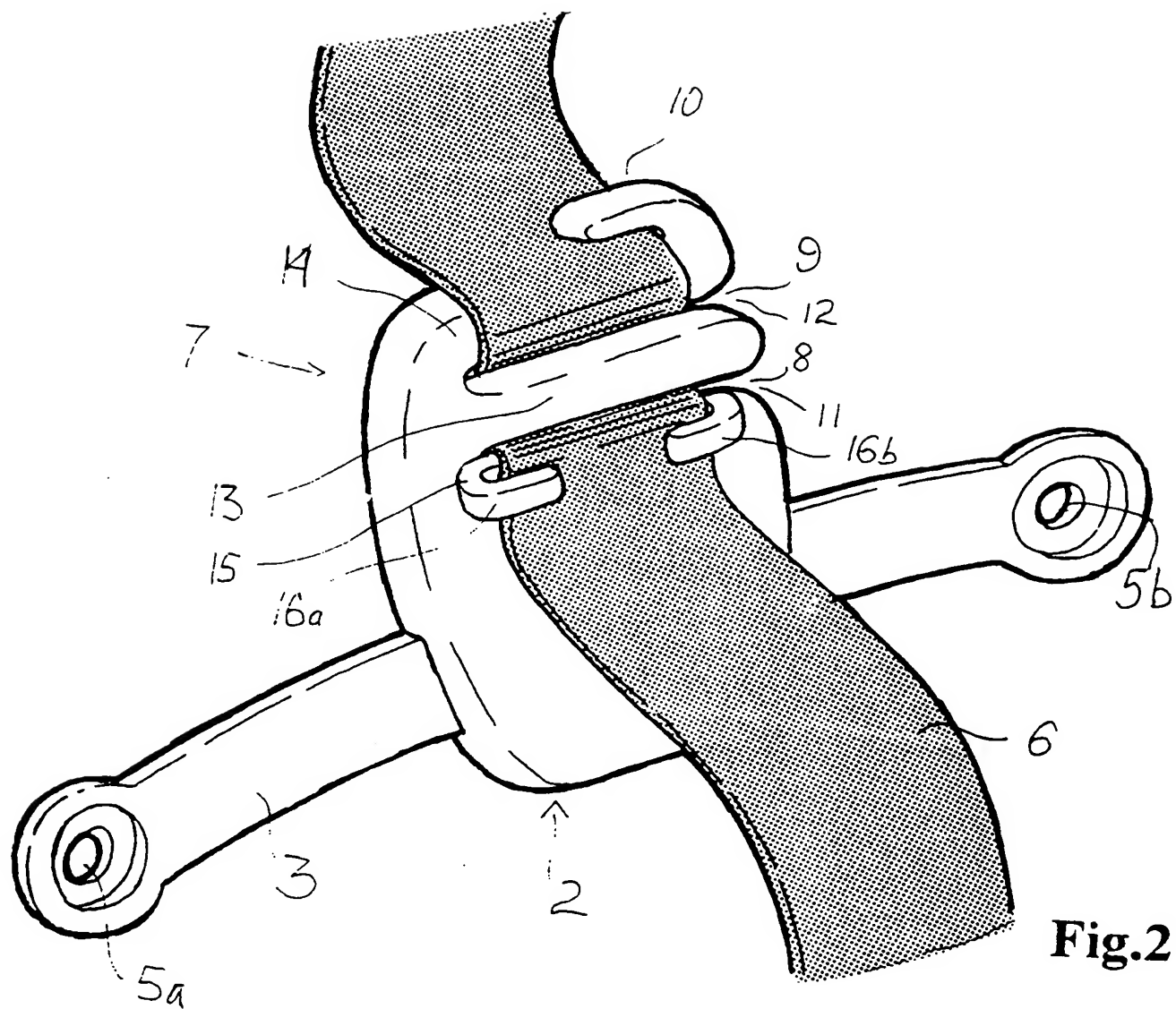


Fig.2

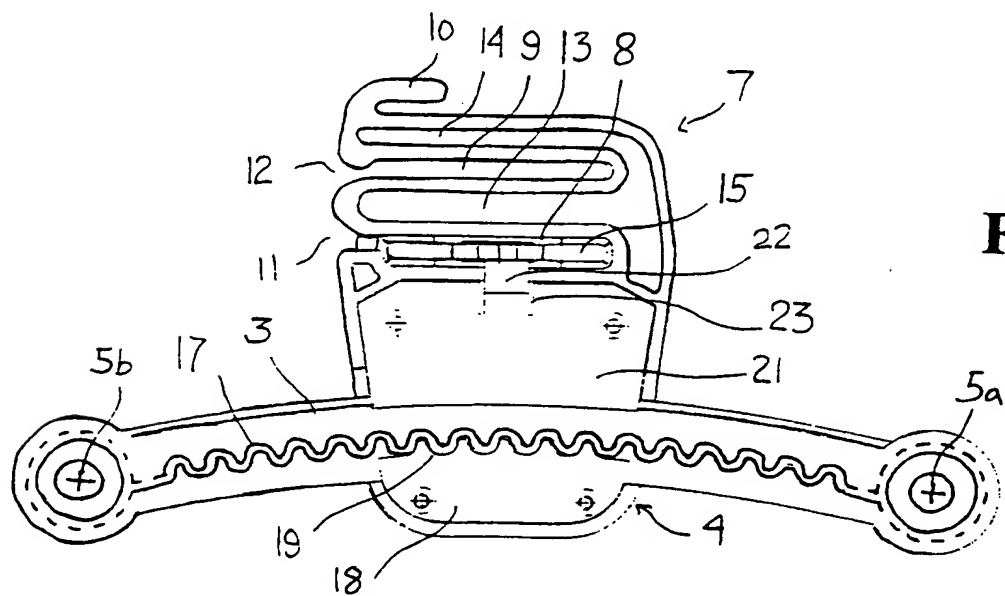
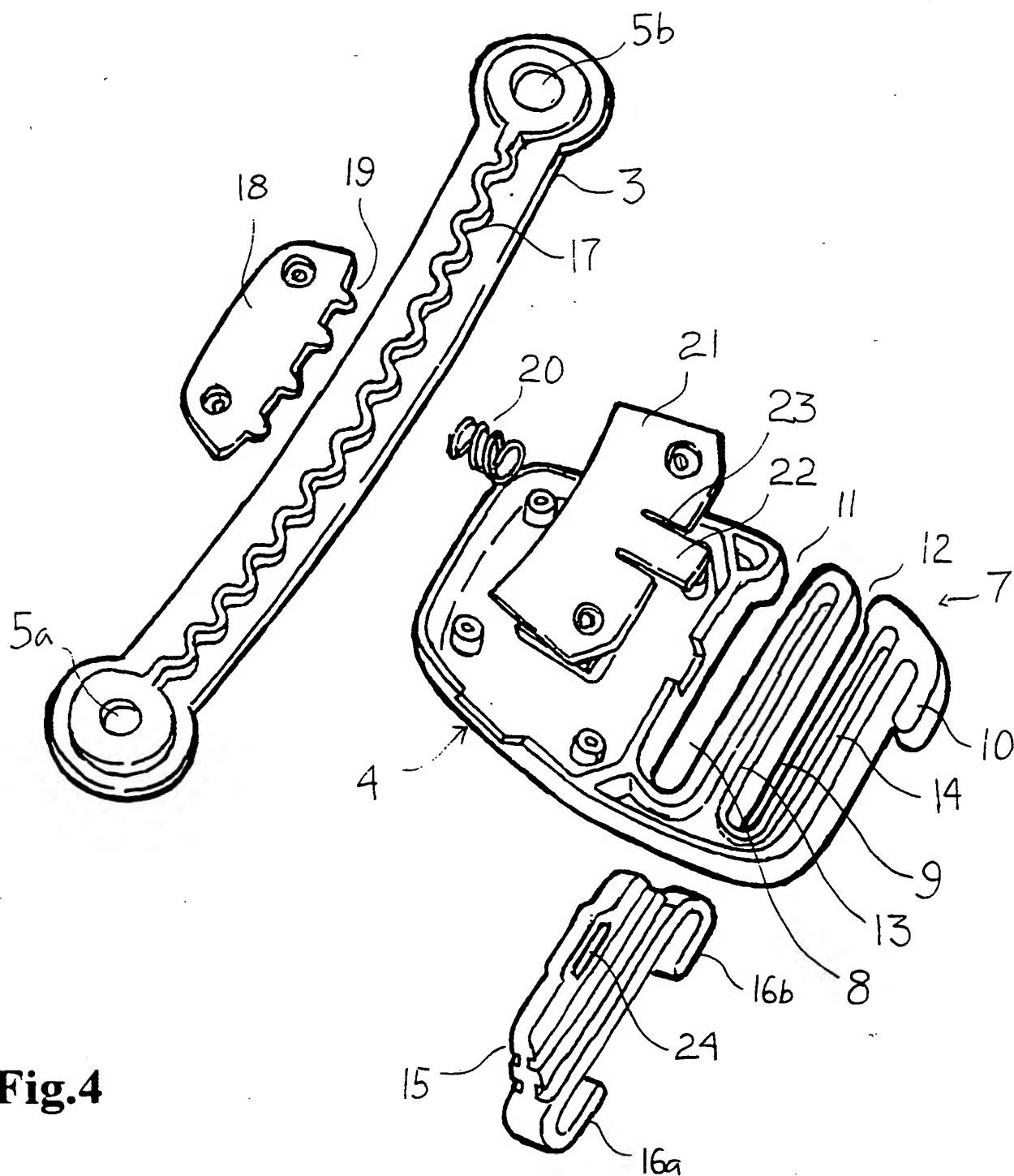


Fig.3



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**Fig.4**

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 97/00298

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B60N 2/28, B60R 22/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B60N, B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EDOC, WPIL

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 4229900 C2 (CURT WÜRSTL VERMÖGENSVERWALTUNGS GMBH & CO KG), 14 July 1994 (14.07.94), figures 1; 2, claim 1	1
A	--	2-7
X	DE 4204232 A1 (CURT WÜRSTL VERMÖGENSVERWALTUNGS GMBH & CO KG), 10 Sept 1992 (10.09.92), column 10, line 22 - column 11, line 1, figures 12,13	1
A	--	2-7
A	DE 3513220 A1 (CURT WÜRSTL VERMÖGENSVERWALTUNGS-GESELLSCHAFT MBH & CO KG), 16 October 1986 (16.10.86)	1-7
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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	DE 2923125 C2 (CURT WÜRSTL VERMÖGENSVERWALTUNGS-GESELLSCHAFT MBH & CO KG), 16 December 1982 (16.12.82)  --	1-7
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Information on patent family members

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